MAR 19 1935

The Maryland Fruit Grower

March, 1935

Maryland State
Horticultural Society

FOR PROVEN CONTROL OF CODLING MOTH

Spray your trees with ORTHOL-K . . . the PROVEN Oil Spray for summer use . . . with a nation-wide record of Proven Results

• Remarkable results have been obtained during the last few years in control of Codling Moth by the use of Oil Spray in the Lead Arsenate applications.

The most outstanding of these results have been obtained with ORTHOL-K, the ORTHO Oil Spray for summer use.

ORTHOL-K has long since passed the experimental stage. Used on thousands of acres over a succession of seasons, it has reduced the percentage of wormy apples in an amazing way.

It kills the eggs, reduces "stings," and adds greatly to the effectiveness of the Lead Arsenate. Combined with Nicotine Sulphate, it has proven a highly satisfactory and economical substitute for the Oil-Lead Arsenate combination. At the same time this combination is a very effective clean up spray for Red Mite, Scale, Aphis, Leafhoppers, Case Bearers, etc., and ends the problem of residue removal.

IMPROVED COPOSIL is a colloidal copper fungicide rated as safer than Bordeaux and other copper fungicides in control of Scab, Brooks' Fruit Spot, Blotch, etc. Mixes readily with ORTHOL-K Lead Arsenate or Nicotine Sulphate combination.

ORTHO SPREADER is an improved film builder to use with Arsenical, Sulphur-Arsenical, Lime-Sulphur, Bordeaux, and other copper sprays, as well as the Oil-Lead combination.

Write for 1935 ORTHO *Spray Bulletin and full information on the* ORTHO *All-Pest Control Program.*

California Spray-Chemical Corporation

214-AA WEST 14TH STREET, NEW YORK

NATIONAL STOCKYARDS, ILL.

2082-AA CENTER ST., BERKELEY, CALIF.

ORTHOL-K

ORTHO SCIENTIFIC PEST CONTROL

& Lead Arsenate with ORTHO Spreader

FOR CODLING MOTH

(and 'COPOSIL' for Scab, Brooks' Fruit Spot, etc.)

The Maryland Fruit Grower

Published Monthly by the Maryland State Horticultural Society

Edited by the Secretary, A. F. Vierheller, Extension Horticulturist

Vol. 5 **March, 1935** **No. 3**

COVER CROPS

Mr. T. B. Hutcheson of the Virginia Agricultural Experiment Station has done very good work with orchard cover crop investigations. In a recent paper on cover crop and soil conditions, he has given the growers some good pointers on general soil and cover crop topics. His paper is printed with a few slight changes adapted to general Maryland conditions:

"I much prefer to define a soil as a mixture of disintegrated rock and organic matter. Soils are made from rocks and organic matter. The value of the soil is dependent upon the chemical composition of the parent rock, the method of soil formation, and the kind and amount of organic matter it contains.

"Limestone, forms a soil relatively rich in the chemical elements required for plant growth. Shale, which is of somewhat less value, and sandstone, form soils low in chemical elements. Thus it is readily seen that the mineral elements in the soil vary greatly with the type of rock from which the soil was formed. On the other hand, the mechanical condition and the water holding capacity of a soil is governed largely by its organic content.

"On the average, more than 400 pounds of water must pass out through the leaves of plants in order that a pound of dry matter may be produced. In addition to this, there is a considerable loss of water by percolation through the soil and by run-off from its surface. When one considers the enormous yield of dry matter in leaves, new growth and fruit produced in orchards, and further considers the fact that the unpreventable loss of water by run-off and percolation amounts to at least fifty percent of the total rainfall, it is easy to grasp the fact that on the average the amount of water falling on orchards during the growing season is insufficient to produce large yields of fruit.

"The only way of increasing the available moisture is to store up in the soil between growing seasons a reserve supply of water.

"Since decomposed rock can hold only from 8 to 10 percent of water and since organic matter may hold from 200 to 300 percent of its weight in water, it is obvious that mixing organic matter with the soil will increase its water holding capacity.

"In fact, there are only two ways by which the available moisture in a soil may be increased, except by resorting to irrigation. They are (1) preventing run-off by using cover crops and cultivation, and (2) increasing the organic matter of an orchard soil. The only practicable large scale method of supplying organic matter to an orchard is the growing of cover crops. Any crop which makes a relatively large growth in a short season may be used for this purpose. Other things being equal, legumes are preferable for cover crops because, when properly inoculated, they have the power of gathering from the atmosphere, nitrogen which may later be used by the trees. It should be borne in mind that the organic matter furnished to the soil is always in proportion to the growth of the cover crop; and that in certain cases fruit trees may not respond to fertilizers, but cover crops *always*

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do. Legumes are particularly responsive to the mineral elements.

"I shall attempt to discuss only three types of cover crops: (1) biennial clovers, (2) cowpeas and soybeans, and (3) annual lespedezas.

"*Biennial clovers* are those clovers which, when seeded in late winter or early spring, grow throughout the summer, die down during the winter, but resume growth the following summer, making their greatest growth during the second year. They die at the end of the second summer, and, if they do not re-seed, they disappear.

"The two most important crops in this group are sweet and red clover. Of the two, sweet clover is better adapted to orchard use because it sends its roots deeper into the soil and makes a heavier yield of organic material than does red clover. In fact there is no crop adapted to orchard use that adds more to the soil than sweet clover. However, this crop will not grow in acid soils, and also requires liberal applications of phosphates for maximum production. A good procedure to follow in obtaining stands of sweet clover in orchards is to apply the necessary amount of ground limestone or its equivalent any time during the winter and to sow 20 pounds of unhulled seed to the acre during the month of March, using at the same time 200 to 300 pounds of a 16 percent superphosphate to the acre. If the land is bare, it should be disked or harrowed, but if it has much cover on it. it should be disked and then seeded. The crop should be mowed as often as it reaches the height of 12 inches and allowed to fall back on the land.

"*Cowpeas* and *soybeans* are summer legumes which furnish lots of organic matter and are well suited to young orchards. Soybeans give best results when seeded during the month of May while cowpeas give highest yields when seeded in June. Both of these crops grow well on acid soils, through they respond to light applications of lime. Applications of 200 to 300 pounds of superphosphate to the acre will usually increase the yields of these crops. The chief objection to the use of cowpeas and soybeans is that it is necessary to plow the land frequently and plowing always increases erosion.

"*Annual lespedezas* may be said to be the best cover crop for poor land when there is not sufficient money available to use the more expensive methods necessary to get stands of sweet clover and alfalfa. These crops grow well on acid soils and require very little in the way of plant food to insure heavy growth. The seed are sown preferably during the month of March and without any soil preparation. They are simply sown broadcast at the rate of 25 pounds to the acre and harrowed in very lightly. If the land has been freshly prepared, no covering is necessary.

"When lands are very acid (below pH 6) applications of 500 to 1000 pounds of ground limestone to the acre will pay, and in most cases 150 to 200 pounds of superphosphate to the acre is profitable. Lespedezas grow very slowly at first and do not draw heavily on soil moisture until after the middle of July. They make a thick, velvety growth which stays green until after frost, and if allowed to remain on the land, reseed heavily every year. The Korean and the Kobe varieties are the best kinds for general use."

HAVE YOU READ THE ADVERTISEMENTS?

STRAWBERRIES

The present crop outlook indicates that there will be a 15% reduction in strawberry acreage in the United States, this year. Maryland is placed in a rather good marketing position, due to the fact that the drought has reduced the picking acreage by about 15,000 acres in the states which precede our Maryland crop, and there are about 13,500 acres less in the states which come on the market with the Maryland crop. This makes a total of 26% less picking acreage than in 1934, in these two groups of states. Maryland will have about 7,000 picking acres in 1935, or about 4% less than in 1934. Just how markets and prices will be affected, is a matter of conjecture, but better care of the strawberry plantings would be highly advisable.

Some recent experiments in plan spacing of the Blakemore strawberry, as conducted by Dr. George M. Darrow and Mr. Charles Dearing, (reported in Bulletin of the North Carolina Department of Agriculture", Raleigh, N. C., November, 1934) show that this variety produced best in rows 24 inches wide, where plants were allowed to root from 6 to 12 inches apart, the wider spacing giving better results. The original plants were set 5 feet apart in rows 4 feet apart. Better yield, size and grade; less decay and easier picking were some of the benefits received. It is easy to understand that thickly matted rows, where plants crowd to 2 inches, will produce dense foliage, weak plants and poor crops. The job of spacing or thinning out plants with a hoe, and keeping the rows narrower, will vary with variety, but the work will be rewarded, usually. Some growers have used the spaced-plant narrow-row system on other varieties in Maryland, and report fine results. It is easy to condemn a variety grown in densely matted rows, because of poor yield, when the real blame should rest upon the grower for wrong cultural methods. In general, it seems that all future fruit growing is heading toward better varieties, less acreage and more intensive culture.

DORMANT AND DELAYED DORMANT SPRAY

Dr. E. N. Cory, State Entomologist states the following:

"It has been reported by Messrs. Graham and Crosthwait that scale is present in some peach orchards, particularly those which failed to have a crop last year. Also red mite and aphis are abundant in apple orchards and, therefore, unless the scab situation was extremely serious in your orchard last year, it will probably be advisable to use an oil and cresylic acid mixture at the delayed dormant period.

Tar oil applications in the dormant season may fail to control the red mite due to the fact that the egg is not entirely susceptible to control measures until the embryo has begun to develop, and this usually does not begin until approximately the time of the delayed dormant application. With this exception, the tar washes, in the dormant season, provided they contain from 1.8 to 2.4% tar oils and 2½ to 3% lubricating oils, will be equally affective as the cresylic acid lubricating oil mixture, applied at the delayed dormant period."

It is time to begin thinking about pollination, and to examine bee hives and estimate your need for bees. Questions regarding bees, and sources of obtaining them, should be referred to George Abrams, Entomology Department, University of Maryland, College Park, Maryland.

Don't Gamble

You can't get A-*Grade Apples*

Why take a chance with your 1935 apple crop? Why let months of hard work, planning and hopes go up in smoke because of inadequate or badly chosen insecticides?

It isn't worth the gamble—particularly when you can draw upon the experiences of hundreds of successful growers and the experiments conducted by the laboratories of the world's largest manufacturer of insecticides.

The Sherwin-Williams recommended apple spraying schedule will produce a heavy deposit of non-injurious sulfur residue to control scab on your apples and foliage. This schedule unhesitatingly condemns liquid lime sulfur in ANY dilution, either alone or with wettable sulfur. Experience has shown it is too likely to burn foliage and russet fruit.

We recommend 3 pounds of Sherwin-Williams Dry Lime Sulfur to 50 pounds of water in the calyx spray. Those sprays applied one week, ten days and two weeks after the calyx spray should consist of 1 pound of Sherwin-Williams Dry Lime Sulfur plus 2 pounds of Mulsoid Sulfur and 2 pounds of Hydrated Lime to 50 gallons of water. In the application 4 weeks after the calyx spray, we recommend 2 pounds of Mulsoid Sulfur with a pound of Hydrated Lime to 50 gallons of water. In this combination of Dry Lime Sulfur and Mulsoid Sulfur, you will get a high deposit of non-caustic, adhesive, scab-controlling sulfur residue.

Sherwin-Williams Dry Lime Sulfur is stabilized, 33° Baumé liquid lime sulfur.

Mulsoid Sulfur is a wettable sulfur containing not less than 99% of sulfur having a minimum of 300 mesh plus an adhesive wetting agent.

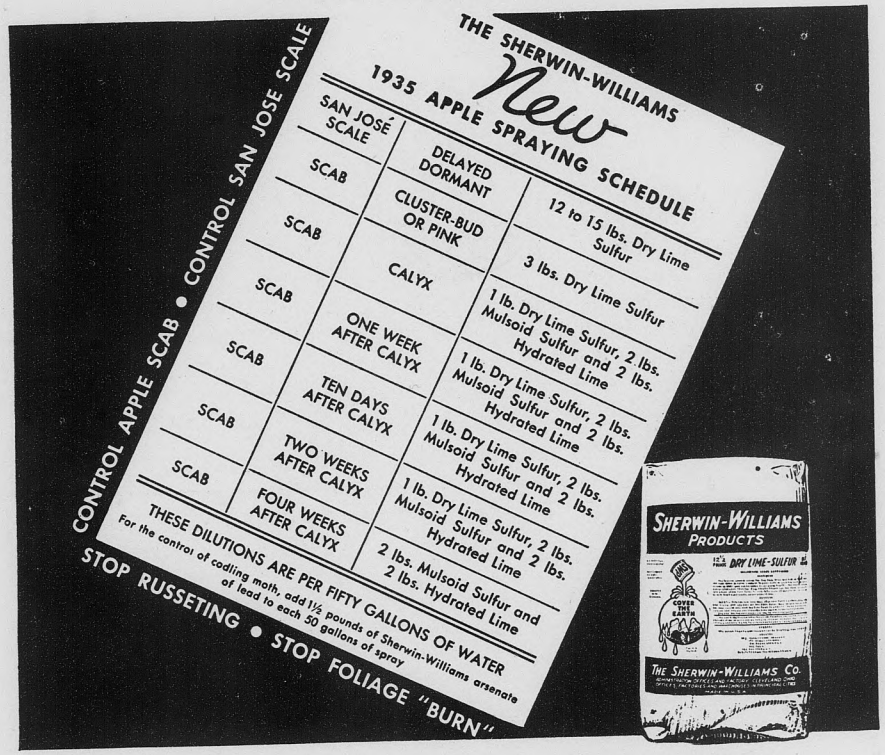
SHERWIN-

SPRAY AND DUST

With Your Apple Crop

With An Antiquated Spray Schedule

We repeat—follow this TESTED Apple Spraying Schedule for best results this spring


THE SHERWIN-WILLIAMS
New
1935 APPLE SPRAYING SCHEDULE
SAN JOSÉ SCALE
DELAYED DORMANT
12 to 15 lbs. Dry Lime Sulfur
SCAB
CLUSTER-BUD OR PINK
3 lbs. Dry Lime Sulfur
SCAB
CALYX
1 lb. Dry Lime Sulfur, 2 lbs. Mulsoid Sulfur and 2 lbs. Hydrated Lime
SCAB
ONE WEEK AFTER CALYX
1 lb. Dry Lime Sulfur, 2 lbs. Mulsoid Sulfur and 2 lbs. Hydrated Lime
SCAB
TEN DAYS AFTER CALYX
1 lb. Dry Lime Sulfur, 2 lbs. Mulsoid Sulfur and 2 lbs. Hydrated Lime
SCAB
TWO WEEKS AFTER CALYX
1 lb. Dry Lime Sulfur, 2 lbs. Mulsoid Sulfur and 2 lbs. Hydrated Lime
SCAB
FOUR WEEKS AFTER CALYX
2 lbs. Mulsoid Sulfur and 2 lbs. Hydrated Lime
THESE DILUTIONS ARE PER FIFTY GALLONS OF WATER
For the control of codling moth, add 1½ pounds of Sherwin-Williams arsenate of lead to each 50 gallons of spray
CONTROL APPLE SCAB • CONTROL SAN JOSE SCALE
STOP RUSSETING • STOP FOLIAGE "BURN"
SHERWIN-WILLIAMS PRODUCTS
DRY LIME-SULFUR
THE SHERWIN-WILLIAMS CO.

The original Dry Lime Sulfur U. S. Patent No. 1,264,908, Jan. 29, 1918.
Reissue Patent No. 14,980, June 22, 1920.

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THE SHERWIN-WILLIAMS CO.

INSECTICIDE DEPARTMENT

101 Prospect Avenue **Cleveland, Ohio**

WILLIAMS MATERIALS

PEACH PRUNING

Some growers may not be done with their peach pruning, and with possible loss of crop, there may be a tendency to not prune the trees or else to prune lightly in order to save whatever crop chances the tree may have. It may be that some growers will cut hard because of crop loss. Under average conditions, it seems only sensible to prune as we normally do, unless this is the year to prune a little more than the usual moderate cutting, to form some new bearing surface on the tree. Very heavy cutting will only tend to weaken the tree if there has been serious freeze injury to the wood. At present, the main wood injury seems to be only on young wood, and is variable, though not thought to be serious. On the other hand light pruning may leave a lot of weak wood to "clutter up" the tree for next year.

Possibly there are growers who have some young trees unpruned, or who expect to plant some peach trees this spring. For their benefit, it was thought advisable to reprint a portion of a paper by Dr. A. L. Schrader of the Maryland Agricultural Experiment Station regarding pruning of young peach trees. Dr. Schrader states:

"In pruning young trees, a light pruning was compared with a heavy pruning up until bearing age. The heavy pruning was the commercial practice which headed back the one-year-wood about thirty to fifty percent and thinned the tree to nearly the future framework. Some trong laterals on the one-year wood also were headed back. The light pruning consisted of a light tipping which removed about six inches of the main terminals, usually heading back to an outward growing lateral. The thinning removed some laterals on the

one-year wood and some weaker branches to the extent of a moderate thinning. The light tipping of the main scaffold branches was the important feature, although an occasional strongly growing branch needed heavier heading to balance the tree.

As a result of light pruning during the first four years, the trees grew to a larger size, both in height and width, and were upon and spreading in shape compared with the dense, compact trees that were heavily pruned. Some fruiting occurred on the lightly pruned trees in the third season while there was practically none on the heavily pruned trees; and in the fourth season the lightly pruned trees outyielded the others by nearly a bushel. The complete results on Elberta and Belle of Georgia are tabulated in Maryland Station Bulletin 199.

When the lightly pruned trees bore heavy crops in the fifth and sixth seasons the trees opened up with the weight of the fruit so that the fruit became well colored as well as being close enough to the ground for easy picking without a ladder. The short, stubby scaffold limbs of the heavily pruned trees did not yield to the weight of the fruit. The lightly pruned trees seemed too tall for economical orchard management until it was found that the cropping spread the tree and the spreading scaffold limbs would bend down under the weight of the fruit. Hence, a larger tree with greater height and spread, capable of bearing larger crops could be maintained to the better peach soils.

Building a Strong Scaffold on the Peach Tree

With the possibility of larger trees and larger crops, the question of strength of the framework to carry the fruit became important. The usual low heading of a peach tree at planting to eighteen or twenty inches results in close spacing scaffold limbs, later appearing to radiate from a common point and forming weak crotches that often split the trunk to the ground under the weight of a heavy crop. In order to develop a stronger framework on a peach tree, a system of high heading followed by deshooting was tried at the Maryland Station several years ago with very satisfactory results. With this method of training the young tree, a five to six foot whip is headed to about 36 inches after planting. A large number of buds push out in growth along this whip and when these new shoots are about two inches in length, four or five well spaced shoots are selected to become the future framework of the tree and all others are removed. The lowest shoot selected should be about fifteen inches from the ground. A week or so later, when the shoots have made some growth it is well to look over the trees again to remove an occasional undesired shoot.

In the Maryland experiments, at the end of the first growing season the total growth of the deshooted trees was not as great as the growth of the low headed non-deshooted trees, due to the reduced leaf area on the former, but little or no pruning was required compared to a rather heavy pruning necessary to shape the low headed tree, so that in the second year the deshooted trees caught up to the other trees in amount of growth. The dwarfing effect of heavy pruning, of course, has been shown in many experiments with young trees.

"Commercial plantings of 15 to 40 acres were trained by the deshooting method in 1925, 1926, and 1927 and have become well shaped, productive trees that do not break down under the weight of heavy crops. The severe

storm of August, 1933 struck one of these orchards while the trees had a very heavy crop, but only twelve trees out of fourteen hundred suffered any damage and this damage consisted in every case of broken scaffold limbs which had formed narrow weak crotches with the trunk. The trunks were not split and each tree had the other scaffold limbs intact, thus saving the major portion of the tree.

"Another advantage of the deshooted trees (which usually was noted) lies in the apparent earlier production of heavy crops, probably due to the lighter type of pruning necessary after the first year. Relatively heavy pruning is needed to shape low headed trees during the early life of the tree which delays the production of heavy crops.

"A word of caution should be given as to circumstances under which the deshooting method should not be tried. In case trees are planted late in the spring (after April 1), and do not become well established, slow starting or even death of some trees may result under this method of training. This same criticism also applies to plantings under dry condition."

In conclusion Dr. Schrader makes the following suggestion:

"1. Under favorable conditions, form a strong scaffold on the peach tree by the deshooting method.

2. Use light pruning on young trees up to bearing age.

3. A light pruning of young trees means especially a light heading of the main growths.

4. A moderate pruning is desirable on bearing trees annually.

5. Cutting back should be employed in greater proportion than thinning and heading on bearing trees.

6. Avoid heavy heading of one-year wood on bearing trees."

NEW BULLETINS

Every fruit grower should be interested in these new bulletins recently published:

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Maryland Bulletin 368—"Spray Residue Removal from Apples", Haller, Beaumont, Gross and Rush.

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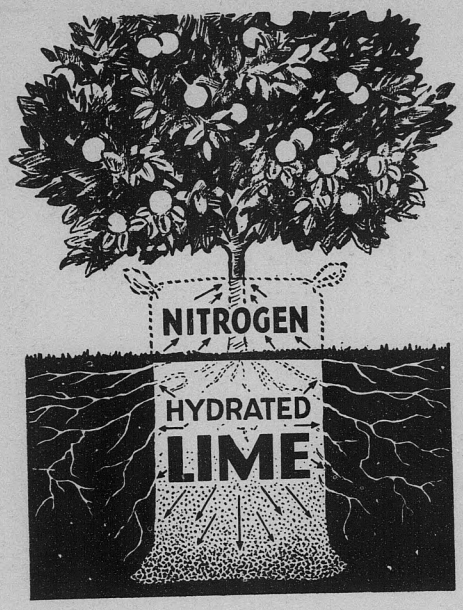
TREE WEIGHT

In a paper before the American Society for Horticultural Science, (1933 Proceedings), A. E. Murneek of the University of Missouri reported that an 18-year-old Jonathan apple tree weighed 995.4 pounds of which 722.9 pounds was above ground, the stump and roots weighing 272.5 pounds. The dry weight of the total tree was 601 pounds. There was a total of 15.32 pounds of sugars, 19.55 pounds of starch and 103.76 pounds of other carbohydrates in the above-ground part of the tree, and 5.25 pounds of sugars, 17.44 pounds of starch and 37.36 pounds of other carbohydrates in the below-ground parts of the tree. The results were obtained in October, 1928.



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22% NITROGEN
70% HYDRATED LIME

The Fruit Fertilizer

It FEEDS the Tree and LIMES the Soil

'AERO' CYANAMID

A non-leaching form of nitrogen
May be applied in fall, winter (in Southern States), or early spring, as one prefers

Feeds the tree throughout growing season
Produces dark green leaves and holds them on until fall (On sandy and shaly soils the supplemental use of potash is recommended)

Keeps the soil sweet and healthy
Destroys acids resulting from use of sprays and cover crops

Produces good terminal growth and fruit buds
Gives bigger yields of better-quality fruit

●

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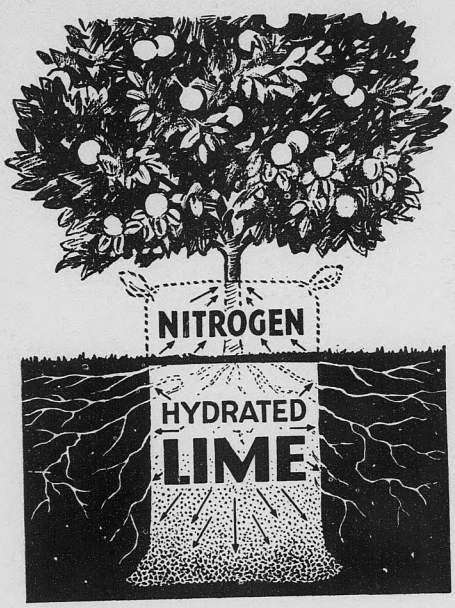

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Feeds the tree throughout growing season
Produces dark green leaves and holds them on until fall (On sandy and shaly soils the supplemental use of potash is recommended)

Keeps the soil sweet and healthy
Destroys acids resulting from use of sprays and cover crops

Produces good terminal growth and fruit buds
Gives bigger yields of better-quality fruit

●

Write for Leaflet X-307, "Fertilizing Fruit with Granular 'Aero' Cyanamid"

AMERICAN CYANAMID COMPANY
Manufacturers of 'Aero' Cyanamid and 'Ammo-Phos'
30 ROCKEFELLER PLAZA 779 VIRGINIA AVE., N. E.
NEW YORK - - N. Y. ATLANTA - - - GA.

CYANAMID PRODUCTS

'Aero' Cyanamid is Nitrogen plus Lime

Extra Benefits from

SCALECIDE

Often Means the Difference between Profit and Loss to a Commercial Fruit Grower.

Scale While Scalecide is the most satisfactory scale spray that has ever been developed, it is the extra benefits from Scalecide which are of most value to the fruit grower.

Aphis As a delayed dormant spray Scalecide kills all aphis that have hatched or are about to hatch—green aphis, rosy aphis, grain aphis, etc.

Red Mite Scalecide's record of red mite control is unsurpassed by any spray.

Codling Moth Scalecide kills a large percentage of the overwintering Codling Moth larvae on your trees; from 5 to 15 times as many as other oil sprays used at the same time. This reduces the Codling Moth population and makes it easier to control. We know of no orchard where Scalecide is used regularly that has a serious Codling Moth problem.

Scalecide is safe.

Scalecide may be used at full strength until the apple buds grow ½" green tips.

Write for B. G. Pratt's new spray program.

B. G. PRATT COMPANY

Dept. "F"

50 Church Street **New York, N. Y.**